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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,343	03/05/2002	Koichi Mukasa	12336/7:1	7710

3528 7590 06/19/2003

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EXAMINER

KALIVODA, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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2881

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,343

Applicant(s)

MUKASA ET AL.

Examiner

Christopher M. Kalivoda

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 8, 10 - 15, 20, 22 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiroki, et al. Japanese Publication 11-108610. Regarding claims 1 and 13, Hiroki, et al. teach a scanning magnetism detector comprising a probe that measures surface condition of a magnetic substance by responding to a tunnel current of spin-polarized conduction electron flowing between the probe and the magnetic substance, the improvement comprising:

A probe comprising a solid material having electrical conductivity and spin polarization properties, the probe including a forefront portion that, when positioned in proximity to a surface of the magnetic substance, causes tunnel current to flow between the probe and the surface of the magnetic substance and thereby enables detection of the surface condition of the magnetic substance essentially undistorted by its magnetic condition (see Detailed Description, para 0001 and 0010).

The machine translation is rough in some areas. Paragraph 1 describes a spin-polarization tunneling microscope in which current flows between the probe and a magnetic surface. Paragraph 10 indicates detection of the surface condition is essentially undistorted by its magnetic condition ("suppressing the disturbance given to the magnetic front face").

Regarding claims 2, 3, 14 and 15, Hiroki, et al teach the use of solid materials wherein the materials are selected from the group consisting of CuF, CuCl, AgI, ZnS, ZnSe, CdS, CdSe, BP, AlAs, AlP, AlSb, GaN, GaAs, GaSb, InAs, InP, InSb, and SiC (see Detailed Description, para 0005 or 0017). In this case, the selected material was GaAs that has a zinc-blende crystal structure.

Regarding claims 8 and 20, the probe is substantially pyramidal shaped (see Abstract - Solution, lines 1-4).

Regarding claims 10, 11, 22 and 23, the probe is formed with a cleaved bulky single crystal (see Detailed Description, para 0005).

Regarding claim 12, Hiroki, et al. teach a scanning tunnel electron microprobe comprising a scanning magnetism detector according to claims 1,2,3,4,5,6,7 or 8 (see Detailed Description, para 0003).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-7 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroki, et al. Japanese Publication 11-108610. Hiroki, et al. teaches the magnetism detector as described above. However, the reference is silent with respect to specific BN, Si, Ge, or Sn and their structures.

The selection of known materials based on its suitability for its intended purposes is well known (see MPEP 2144.04; Sinclair & Carroll Co. v. Interchemical Corp., 327, 65 USPQ 297 (1945)).

It would have been obvious to one skilled in the art at the time the invention was made to modify the probes of Hiroki, et al. to use these types of materials.

The motivation for using these types of materials would be their known semi conductive properties and availability.

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Claims 9 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroki, et al. Japanese Publication 11-108610 in view of Shiho, et al. Japanese Publication 2002-202238. Hiroki, et al. teaches the limitations of claims 2 and 13 as described above. However, the reference is silent with respect to the probe dimension sized at most 10nm.

Shiho, et al. teach the resolution of a magnetic force microscope is a maximum of about 10nm (see Description of Prior Art, lines 1-4).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Hiroki, et al. such that the probe dimension was at most 10nm.

The motivation for this modification would be to incorporate high resolution.

Conclusion

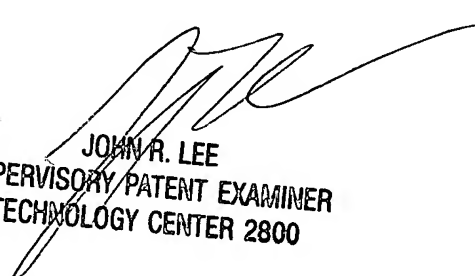
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Kalivoda whose telephone number is (703)-305-7443. The examiner can normally be reached on Monday - Friday (8:30 - 5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (703)-308-4116. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-872-9318 for regular communications and (703)-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

cmk
June 10, 2003



JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800